

TABT Updates of the Week for February 2018

Item 1 – State and National Awards

TABT Recommends Our Affiliates

Texas Association of Biology Teachers (TABT) is an affiliate of both the Science Teachers Association of Texas (STAT) and the National Association of Biology Teachers (NABT). If you aren't a member of one or the other, you should give them your consideration. Both have great materials and are leaders in the field. You can find STAT at <http://www.statweb.org/> and NABT at <http://www.nabt.org/>.

Item 2 – Professional Communications & Networking

TABT Website Set to Grow With Your Help

The Texas Association of Biology Teachers maintains an extensive website at <http://tabt.us>. Our webmaster, Corena "Nikki" Fitzgerald, maintains the site. The TABT website can only get better with your help. Please use the "Teacher Materials Form" on the classroom resources page to submit your favorite labs and activities. Our president elect, Claire Vollmar, will be reviewing and organizing materials for this portion of the site and is excited to hear from you. You can submit the completed form along with any handouts or teacher materials to Claire at vollmars@satx.rr.com.

Item 3 – Science Update

Sergej Nowoshilow, et al., "The Axolotl Genome and the Evolution of Key Tissue Formation Regulators" (Nature, 554:7690, 24 January 2018, Pages 50-55)

Sequencing and assembly of the 32-Gb genome of the Mexican axolotl reveals that it lacks the developmental gene Pax3, which is essential in other vertebrates; the genome sequence could improve our understanding of the evolution of the axolotl's remarkable regenerative capabilities.

A.M. Pagano, et al., "High-energy, High-fat Lifestyle Challenges an Arctic Apex Predator, the Polar Bear" (Science, 359:6375, 2 February 2018, Page 568-572)

Polar bears' high-energy lifestyle makes them reliant on sea ice-associated prey.

Item 4 – Quote of the Week for 5 February 2018

"The development of biology is going to destroy to some extent our traditional grounds for ethical belief and it is not easy to see what to put in their place." – Francis Crick, *British Molecular Biologist and Biophysicist*

Item 5 – URL of the Week for 5 February 2018

DNAdots

The DNAdots website contains a selection of two page handouts designed to explain popular modern genetic technologies. Handouts cover topics such as CRISPR, Genome Editing, Sequencing, and GMOs. Each handout includes a set of study questions that could be used as a homework assignment or class discussion points. <https://dnadots.minipcr.com/>

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Item 1 – Professional Development Opportunity

The Life and Work of Charles Darwin

TABT members who are in the Houston area will want to celebrate Darwin Day with a presentation by our own Robert Dennison. Robert will be speaking on “The Life and Work of Charles Darwin” at 12:30 p.m. on February 12, in room 209 of Lone Star College’s Atascoscita Center, 15903 West Lake Houston Parkway in Houston. The event is free and open to the public. For further information, visit:

<http://darwinday.org/event/the-life-and-work-of-charles-darwin/>

Item 2 – Professional Communications & Networking

TABT Group Page on Facebook

The Texas Association of Biology Teachers maintains a group page on Facebook. Please join the group and take part in additional articles posted on a weekly basis. You’re sure to find something new!

Item 3 – Science Update

Alan M. Wilson, et al., “Biomechanics of Predator–prey Arms Race in Lion, Zebra, Cheetah and Impala” (*Nature*, 554:7691, 24 January 2018, Pages 183-188)

Analysis and modelling of locomotor characteristics of two pursuit predator–prey pairs show that hunts at lower speeds enable prey to use their maximum maneuvering capacity and favor prey survival.

Michael J. Gandal, et al., “Shared Molecular Neuropathology Across Major Psychiatric Disorders Parallels Polygenic Overlap”

(*Science*, 359:6376, 9 February 2018, Page 693-697)

Neuropsychiatric disease patients have both shared and distinct gene expression pattern changes in the brain compared with controls.

Item 4 – Quote of the Week for 12 February 2018

“Ignorance more frequently begets confidence than does knowledge: it is those who know little, not those who know much, who so positively assert that this or that problem will never be solved by science.”– Charles Darwin, *FLS, British Naturalist and Author*

Item 5 – URL of the Week for 12 February 2018

Molecular Workbench

A suite of computational models based on scientific first principles that make the world’s invisible phenomena visible and explorable. Students can peer into the details of chemical reactions, manipulate the invisible world of genes and DNA, compress centuries into seconds to unlock evolution’s gradual mysteries, or watch Earth’s plates create massive landforms.

<http://mw.concord.org/modeler/index.html>

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Item 1 – Student Opportunity

National Youth Science Camp

Two talented graduating seniors will be selected to represent Texas at the 2018 National Youth Science Camp (NYSC). Student delegates attend the STEM and outdoor adventure program, at no charge. Travel is included. The students also spend several days in Washington, DC.

Applications are currently open. Applications will close on February 28, 2018 at 6:00pm EST.

The dates of NYSC are planned for June 27 - July 21, 2018. Only students who can attend the entire session should plan to apply. Additional information is available at <http://apply.nysc.org>.

Item 2 – Summer Professional Development Opportunity

National Biology Modeling Workshop

St. Thomas High School, in Houston, Texas will be hosting a Modeling Instruction workshop biology teachers June 18-29, 2018. Participants will be introduced to the Modeling Instruction framework developed at Arizona State University and will be provided with a complete set of course materials along with two weeks on intensive hands-on training in the curriculum. Opportunity Website: <https://modelinginstruction.org/biology-in-texas/>. Registration Link: <http://store.sths.org/teacher-workshops/>

Item 3 – Science Update

Guohong Albert Wu, et al., “Genomics of the Origin and Evolution of Citrus”

(*Nature*, 554:7692, 15 February 2018, Pages 183-188)

The origin, evolution and domestication of Citrus and the genealogy of the most important wild and cultivated citrus varieties.

Patrick Nosil, et al., “Natural Selection and the Predictability of Evolution in *Timema* Stick Insects”

(*Science*, 359:6377, 16 February 2018, Page 765-770)

Frequencies of stick insect coloration and patterning over time are used to determine the predictability of evolution.

Item 4 – Quote of the Week for 19 February 2018

“We only have to look at ourselves to see how intelligent life might develop into something we wouldn’t want to meet.”– Stephen Hawking, *FLS, English Theoretical Physicist*

Item 5 – URL of the Week for 19 February 2018

NCBI Genome Website

Contains sequence and map data from the whole genomes of over 1000 organisms. The genomes represent both completely sequenced organisms and those for which sequencing is in progress. All three main domains of life (bacteria, archaea, and eukaryota) are represented, as well as many viruses, phages, viroids, plasmids, and organelles.

<https://www.ncbi.nlm.nih.gov/genome>

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Item 1 – Summer Professional Development Opportunity

River Stories

River Stories provides K-12 teachers with a rich humanities context to an environmental issue: the relationship between rivers and people. Teachers participate in a three-day workshop where they immerse themselves in various river stories that make up a river's landscape, including physical systems, human geography, and environment and society. During this hands-on, field-based workshop, presenters will model inquiry-designed exploration, including how to observe the layers of stories that a landscape has to tell. The workshop will run June 11 to 13 in San Marcos. More information can be found at <http://geo.txstate.edu/tage>

Item 2 – Science Update

Franziska Taubert, et al., “Global Patterns of Tropical Forest Fragmentation”

(*Nature*, 554:7693, 22 February 2018, Pages 519-552)

Satellite data and modelling reveal that tropical forest fragments have similar size distributions across continents, and that forest fragmentation is close to a critical point, beyond which fragment numbers will strongly increase.

Satoshi Iwano, et al., “Single-cell Bioluminescence Imaging of Deep Tissue in Freely Moving Animals”

(*Science*, 359:6378, 23 February 2018, Page 935-939)

A bioengineered light source allows in vivo imaging of individual cells.

Item 3 – Quote of the Week for 26 February 2018

“Molecular biology is essentially the practice of biochemistry without a license.”– Erwin Chargaff, *Austro-Hungarian Biochemist*

Item 4 – URL of the Week for 26 February 2018

The Field Book Project

The Field Book Project from the National Museum of Natural History and the Smithsonian Institution Archives intends to create a "one stop" archive for field research journals and other documentation. You can find plenty of examples from actual field research journals for your classes.

<http://biodivlib.wikispaces.com/The+Field+Book+Project>

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